Amendments to the Specification:

Please replace the paragraph at page 9, lines 5-12 as follows:

In embodiments of the invention, the multi-layered membrane of the invention comprises one or more porous protective layers, a first catalyst layer, the NPSP layer, and a second catalyst layer and one or more porous protective layers, the layers listed from in order from the hydrogen feedstock surface of the membrane to the hydrogen sink surface of the membrane. In other related embodiments of the invention, the multi-layered membrane of the invention comprises one or more porous protective layers, a first catalyst layer, the NPSP layer, a second catalyst layer and one or more porous protective layers, the layers listed ~~from~~ in order from the hydrogen feedstock surface of the membrane to the hydrogen sink surface of the membrane.

Please replace the paragraph on page 13, lines 14-30 as follows:

Protective layers are porous metal oxide layers which if present are positioned as the outermost layers of the multi-layer hydrogen-permeable membranes. The protective layers protect the catalyst and NPSP layers from the detrimental effects of feedstream and other contaminants that may enter the membrane reactor system. For example, the protective layers can minimize undesired deposition of metals from the feedstream or from metal equipment, tubing or plumbing used in the membrane reactor system onto the catalyst or NPSP layer. Exemplary protective layers include alumina, zirconia, or other metal oxides. Additionally activated carbon or zeolites can be employed. Protective layers can also provide protection from chemical contaminants in the feedstock that would detrimentally affect membrane layer function. In particular, a metal oxide that forms stable sulfides can be used to protect the membrane from sulfur-containing compounds. For example, a protective~~ly~~ layer of porous ZnO, La_2O_3, SrO, CeO_2, or perovskites such as $SrCeO_3$ or $La_{1-x}Sr_xCoO_{3-\delta}$ (where $0 \leq x \leq 1$ and δ is a number that renders the material charge neutral) can be used to protect the catalyst and NPSP layers from poisoning by sulfur-containing species, including hydrogen sulfide. Hydrogen sulfide dissociation is promoted by addition of copper to the metal oxide of

the protective layer. In additional examples, a ~~protectively~~ protective layer comprising a ceramic or other material that absorbs or decomposes water or hydrocarbons can be provided.

Please replace the paragraph on page 23,lines 5-31 as follows:

Hydrogen-Permeable Metals and Alloys. High hydrogen permeability of transition metals has been well documented over many decades. In particular, Group V metals (V, Nb, Ta) and related alloys have exceptional permeability (See: U.S. patent 3,350,846, among others). There are a number of reports of metal and alloy materials, particularly metal foils, used for hydrogen separation and purification. (See: Makrides, A. C.; Wright, M. A.; Jewett, D. N., "Separation of Hydrogen by Permeation," 3,350,846, ~~November 7, 196~~ November 7, 1967; Hill, E. F., "Hydrogen Separation Using Coated Titanium Alloys," 4,468,235, August 28, 1984; Hara, S.; Sakaki, K.; Itoh, N., "Amorphous Ni Alloy Membrane for Separation/Dissociation of Hydrogen, Preparing Method and Activating Method Thereof," 6,478,853, November 12, 2002; Edlund, D. J.; Pledger, W. A.; Studebaker, T., "Hydrogen-Permeable Metal Membrane and Hydrogen Purification Assemblies Containing the Same," 6,547,858, April 15, 2003; Buxbaum, R. E., "Composite Metal Membrane for Hydrogen Extraction," 5,215,729, June 1, 1993; Edlund, D. J., "Hydrogen-Permeable Composite Metal Membrane," 5,139,541, August 18, 1992; Edlund, D. J.; Friesen, D. T., "Hydrogen-Permeable Composite Metal Membrane and Uses Thereof," 5,217,506, June 8, 1993; Edlund, D. J., "Composite Hydrogen Separation Metal Membrane," 5,393,325, February 28, 1995; Edlund, D. J.; Newbold, D. D.; Frost, C. B., "Composite Hydrogen Separation Element and Module," 5,645,626, July 8, 1997; Thornton, P. H., "Supported Membrane for Hydrogen Separation," 6,475,268, November 5, 2002; Peachey, N. M.; Dye, R. C.; Snow, R. C.; Birdsell, S. A., "Composite Metal Membrane," 5,738,708, April 14, 1998; Dye, R. C.; Snow, R. C., "Thermally Tolerant Multilayer Metal Membrane," 6,214,090, ~~April 10, 200~~ April 10, 2001; Buxbaum, R. E.; Marker, T. L. *J. Mem. Sci.* **1993**, *85*, 29-38; Peachey, N. M.; Snow, R. C.; Dye, R. C. *J. Mem. Sci.* **1996**, *111*, 123-133; Nishimura, C.; Komaki, M.; Amano, M. *Mat. Trans.* **1991**, *32*, 501-507; Yamakawa, K.; Ege, M.;

Ludescher, B.; Hirscher, M.; Kronmueller, H. *J. Alloys and Compounds* **2001**, *321*, 17-23; Zhang, Y.; Ozaki, T.; Komaki, M.; Nishimura, C. *Scripta Materialia* **2002**, *47*, 601-606; Heinze, S.; Vuillemin, B.; Colson, J.-C.; Giroux, P.; Leterq, D. *Solid State Ionics* **1999**, *122*, 51-57; Nishimura, C.; Komaki, M.; Hwang, S.; Amano, M. *J. Alloys and Compounds* **2002**, *330-332*, 902-906.)

Please replace the paragraph on page 41, lines 24-28 as follows;

This invention provides membrane reactors which employ membranes of this invention for hydrogen separation. Various reactor membrane designs are known and used in the art. A number of references cited herein provide useful reactor designs. U.S. patents ~~6281,403~~ 6,281,403, 6,037,514, and 5,821,185 provide descriptions of exemplary reactors. U.S. patent 6,569,226 also provides a description of an exemplary reactor.